RCN Webex Meeting – May 22 2014

Minutes of Meeting

Attendees – Eric Delory, Paul DiGiacomo, James Gallagher, Eileen Hofmann, Bob Houtman, Roger Longhorn, Gonzalo Maovarez, Paola Materia, Kate Moran, John Orcutt, Francoise Pearlman, Jay Peralman, Mary Jane Perry, Iain Shepherd, Heidi Sosik, Martin Visbeck, Sandy Williams, Dawn Wright, Jim Yoder

Agenda

RCN Web site
The North Atlantic - Iain Shepherd, EC
"Sustained Ocean Observations in the Atlantic" - Martin Visbeck, GEOMAR
The North Atlantic Observations – a discussion, Eileen Hoffman
The GEO Coastal Zone Community of Practice – Hans-Peter Plag
Working group activities – Gallagher/Orcutt, Hofmann and Yoder.

Next Meetings: Sept/October Webex (Date TBA); Dec 14 2014 in person – San Francisco

Presentations and Discussions

Martin Visbeck - "Sustained Ocean Observations in the Atlantic from Networks to Integrated Systems".

Martin Visbeck of GEOMAR at Kiel, Germany provided an overview of the importance of oceans and the factors driving the ocean environment. He introduced the Ocean Health Index as a means of gauging the ocean conditions. As expected, there is a lot of variability among topics (subgroups) from 10 to 87 on a scale of 100.

Martin then discussed directions in ocean observation including the development of essential ocean variables and the evolution of readiness levels.

The North Atlantic initiative, a collaboration of the EU, US and Canada, was agreed to in the Galway Statement of 2013. A call to support a North Atlantic Observing was issued in 2014. A response to the call entitled "AtlantOS" was presented by Martin with emphasis on key areas necessary for an innovative and comprehensive integrated observation system. These key areas include (along with activity leads):

WP1	Observing Systems	Fischer, Vittis, Legler
WP2	Ship based Observations	Drinkwater,Lherminier, Baringer
WP3	Autonomous Observations	Claustre, Boeflaus, Schofield
WP4	Coastal Processes	Horsburgh, Farcy, Willis
WP5	Regional Processes	Speich, Karstensen, de Young
WP6	Innovations and Sensors	Mowlem, Delory, Pearlman
WP7	Data Flow	Pouliquen, Waldmann
WP8	Societal Benefits	Pinardi, Nolan
WP9	System Evaluation	LeTraon, Visbeck
WP10	Communication	Fritz, Larkin, Avery/Crago

In the question period following the presentation, Martin was asked if AtlantOS is a cyclic (evolutionary) approach. He responded that it is about one and a half cycles of a long-term development. He was asked if the proposed sensor development resources complement other sensor developments in Europe. He confirmed that is the intent. Specifically, Martin Visbeck said that AtlantoS will address sensors on Argos floats and gliders, leveraging and integrating ongoing projects. John Orcutt pointed out that there is open data for the North Atlantic from the OOI Pioneer Array in the Mid Atlantic Bight with streaming data from buoys. He would like to work with the EU effort. Martin said that he is working with Bob Weller on OOI data from the Pioneer array now.

Iain Shepherd reiterated the importance of the North Atlantic Initiative from the perspective of the European Commission. The Commissioners are supportive of both the European elements of the initiative and the benefits that will come from collaboration across the Atlantic, in the northern hemisphere and eventually expanded to the southern hemisphere. In addition to the observation theme, other areas of emphasis include ocean literacy, polar research and improved understanding of ocean resources and management. The Commission plans to invest 57M€ euros in blue growth. A memo some providing background is given in Appendix A.

In the discussion, it was noted that OOI has the pioneer array in the Mid Atlantic and additional capabilities are being put in the area near Greenland. Data sharing among these US and other European systems should be seriously considered in the joint programs.

Eileen Hoffman gave an informal presentation on activities relating to research for biogeochemistry and biology that could contribute to the North Atlantic cooperation. Last summer the workshop was in Woods Hole on multidisciplinary work and revealed interest in the Arctic and N. Atlantic System. It included European Commission people and scientists from Canada. With the Galway statement, NSF expressed interest in defining science projects that support a better understanding of the Atlantic. This question was addressed recently in a workshop held in April in Washington DC with international participation. The workshop was a joint planning effort to define a roadmap of the path forward for science research. The output would be used by the EC and the NSF for planning of future calls for research. The plan is being drafted by the organizers and will be circulated to the workshop attendees for review shortly. A workshop on July 21 will be the next opportunity for broad discussion on the North Atlantic and related science plans.

During questions it was asked if similar discussions will be held at the IMBER meeting in Bergen in June. Eileen said there is a session that would be appropriate. Also, there was a question about whether the list of workshop participants and the agenda are available. Eileen said that they are and will provide a link to the Arctic-NA website.

Hans-Peter Plag gave an update on the GEO Coastal Zone Community of Practice (CoP); the webpage is www.czcp.org. The CoP is part of the Blue Planet GEO activities and is focused in Task SB-01 Task C4. Subject areas for the task include Global Cyber Infrastructure, Observational requirements for coastal impacts – seafloor topography under ice shelves for example as it may affect coastal flooding due to global warming and rapid sea level rise. Hans-Peter reviewed each of the subtasks (see appendix B for description). He asked for contributors to help with the development of a case study on the response of coastal systems to sea level rise. This would be a one-year study to be presented at the Blue Planet meeting in 2015.

Hans-Peter mentioned that there is consideration of holding the 2015 or 2016 meeting of Blue Planet in the US. The schedule and location of the meetings will be discussed at a Blue Planet coordination meeting later this year. Dawn Wright expressed interest in the Blue Planet meeting in the US and was willing to suggest locations for the meeting. **Paul DiGiacomo** added that he has formed a new IOCCG working group on water quality. The first meeting will be held on June 14. The second meeting will be held in Geneva in April 2015.

Working Group Reports –

Jim Yoder noted that a draft report for the Remote Sensing-In Situ working group is being circulated for review. The report uses a coastal –river influx use case to look at the challenges and benefits of combined observation and modeling. Jim mentioned an upcoming meeting between WHOI and IFREMER that may include a discussion on the subject.

John Orcutt said that the Open Data working group is planning to submit a paper for peer-reviewed publication of the updated discussions and findings of the working group. He asked if others would like to review the paper prior to submission. Dawn expressed interest.

Eileen Hofmann reviewed the activities on the multi-disciplinary working group. More recently there have been discussions about participating in a workshop to address data and observation availability and definitions of essential ocean variables. There was a teleconference on May 21 with Samantha Simmons from IOCCP on Ocean Variables. This is the US assistance to agencies on multidisciplinary variables.Further information will be available by the next RCN meeting.

Jay Pearlman reminded RCN members that the next webex meeting will be in September/October and the Annual meeting will be in San Francisco on December 14 2014, just prior to the AGU. The Webex in September/October will include John Orcutt giving a presentation on OOI and Oscar Schofield on gliders.

Jay expressed his appreciation to the presenters and thanked all of the participants for joining the meeting. The meeting was adjourned.

APPENDIX A

EUROPEAN COMMISSION

MEMO

Brussels, 24 May 2013

Marine research in the European Union and the Atlantic

The European Union, the United States and Canada today signed the "Galway Statement on Atlantic Ocean Cooperation" with the aim of furthering research into the workings of the Atlantic Ocean and its interaction with the Arctic. The alliance will build on existing bilateral cooperation agreements and projects with the aim of developing and advancing a shared vision for the Atlantic. For the European Union, the Statement was signed by European Commissioner for Research, Innovation and Science Máire Geoghegan-Quinn and European Commissioner for Maritime Affairs and Fisheries Maria Damanaki. For the United States the Statement was signed by Dr Kerri-Ann Jones, Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs. For Canada, Senator David Wells signed on behalf of Edward Fast, Canadian Minister of International Trade and Minister for the Asia-Pacific Gateway.

Here is a summary of relevant facts and projects related to trans-Atlantic marine research cooperation.

Why is there a need for a new initiative?

Existing cooperation is coordinated mainly through bilateral science and technology agreements, or takes place within the framework of international fora with the risk that efforts may become fragmented. One of the aims of the initiative is to obtain an overview of activity, spot gaps and then explore what new opportunities for cooperation may exist. European countries have mapped their research activity and needs within the context of the SEAS-ERA project, which has produced a draft report on marine research priorities for the European Atlantic sea basin. However, as the report notes, Atlantic research cannot be seen from a European perspective alone and there is a need for co-operation with the United States, Canada and other countries.

What examples can you give of existing bilateral cooperation?

The European Commission's in-house science service, the Joint Research Centre, and the U.S. National Oceanic and Atmospheric Administration (NOAA) agreed in May 2012 to strengthen cooperative science activities in the areas of climate, weather, oceans and coasts. The agreement focused on four projects for near term implementation: climate data records, space weather, tsunami modelling and fisheries research.

European and North American researchers cooperated in the framework of the Basin-scale Analysis, Synthesis and Integration (BASIN) initiative to develop a joint research agenda the area of ocean ecosystems in support of the Global Earth Observation System. In Europe, work is continuing in the context of the EURO-BASIN project, which aims to understand and predict the population structure and dynamics of key

plankton and fish species of the North Atlantic and shelf seas, and assess the impacts of climate variability on North Atlantic marine ecosystems and their goods and services. Canadian researchers took part in the first leg of the MyOcean ocean monitoring and forecasting project funded under the European Union's seventh framework research programme (FP7). Under the auspices of ERA-Can, the organisation encouraging Canadian participation in FP7, an event will also be held later this year on Arctic and Marine Research Infrastructure.

How much does the EU spend on marine and maritime research?

Since 2002, through its framework research programmes, the European Union has invested over two billion euro in more than one thousand marine research projects. In addition, the 27 EU Member States invest individually in marine and maritime research. In total, the EU collectively spends about €2 billion a year in this area.

What is the EU doing on ocean observation and seabed mapping?

Through its Marine Knowledge 2020 initiative, the EU is setting up a process for integrating national marine data and marine forecasting capacities into a sustainable seamless open access system to benefit researchers, public authorities and private industry. Prototypes are already operational and these will be extended through continuations of the European Marine Observation and Data Observation (EMODnet) and Copernicus (formerly GMES) programmes.

EMODnet has completed its first pilot phase and is now moving into a second operational phase whereby more than 100 European bodies are working together to deliver access to bathymetric, geological, physical, chemical, biological and human activity data and data products through a set of internet portals. The marine service of COPERNICUS provides access to observations from space and also an ocean forecasting system through a separate portal.

A related international initiative is the Group on Earth Observation (GEO) and its Blue Planet Task, which aims to improve ocean observation at global level and assess the effectiveness of the climate adaptation measures (such as those related to vulnerability and impacts of sea-level rise). Blue Planet Task is very relevant to the implementation of ocean observation systems in the Atlantic as many GEO partners and organisations in countries on both sides of the ocean are actively participating in this initiative.

Does the EU have any projects related to the Atlantic and climate change?

The North Atlantic Ocean is one of the most important drivers for global ocean circulation. Global climate variability is also triggered by changes in the North Atlantic sea surface state. The quality of climate predictions therefore depends on good knowledge of northern sea surface temperatures and sea ice distributions.

The changing Arctic environment strongly influences the Atlantic Ocean. The EU project Arctic Tipping Points demonstrated how diminishing sea ice extent and warming Arctic sea surface temperature cause a northward move of important Atlantic fish species. The Ice2sea project determined the contribution of glaciers and ice-sheets (Greenland, Antarctica) to global sea level rise, partly caused by a warming of Atlantic ocean streams. The project cooperated with related projects in US and

Canada (SEARISE, IMBIE). The four-year NACLIM project, supported with an EU grant of €8.6 million, aims to investigate and quantify the predictability of climate in the North Atlantic/European sector. It involves 17 partners, including from Norway and Iceland. NACLIM cooperates also with U.S. projects in particular regarding ocean circulation observations (OSNAP).

NACLIM follows on from the EU-funded four-year THOR project that concluded in November 2012. THOR investigated the dynamics of the Atlantic Ocean's circulation and its impact on Europe's climate.

What about projects aimed at exploring the sea's potential?

The three year MARINE FUNGI project, due to end in April 2014, hopes to identify natural marine products for the treatment of cancer. It also investigates the cultivation of marine fungi for the efficient production of natural products in the laboratory and also in large scale cultures, avoiding harm to the natural environment. The therapeutic focus of MARINE FUNGI, led by the Helmholtz Zentrum für Ozeanforschung in Kiel, Germany, is the development of novel anti-cancer compounds.

A team of international scientists led by Limerick Institute of Technology in Ireland is investigating innovative solutions to overcome existing bottle-necks associated with culturing marine organisms in order to sustainably produce high yields of value-added products for the pharmaceutical, cosmetic and industrial sectors. The three-year BAMMBO project is due to end in February 2014.

Researchers in the PHARMASEA project, due to end in 2016, is seeking to identify new marine microbial strains from extreme environments to evaluate their potential as new drug leads, antibiotics or ingredients for nutrition or cosmetic applications. Scientists from the UK, Belgium, Norway, Spain, Ireland, Germany, Italy, Switzerland and Denmark will work together to collect and screen samples of mud and sediment from huge, previously untapped, oceanic trenches. The large-scale, four-year project is backed by more than €9.5 million of EU funding and brings together 24 partners from 14 countries from industry, academia and non-profit organisations.

The five-year CORALFISH project, coordinated by the University of Ireland in Galway, concluded in February having studied the interaction between cold water corals, fish and fisheries, in order to develop monitoring and predictive modelling tools for ecosystem based management in the deep waters of Europe and beyond.

To advance knowledge of the functioning of deep-sea ecosystems and their contribution to the production of goods and services, the European Union also funded the three year HERMIONE project led by the Natural Environment Research Council in the United Kingdom. Gaining this understanding is crucial, because these ecosystems are now being affected by climate change and impacted by man through fishing, resource extraction, seabed installations and pollution.

Appendix 2 Task C-4 of the GEO SB-01 Task

Introduction

SB-01-C4 is a Component of Task SB-01: Oceans and Society: Blue Planet

The SB-01 Task Coordinator is Trevor Platt (POGO)

The Point of Contact for this Component SB-01-C4 is Hans-Peter Plag (hpplag@odu.edu)

Related Communities of Practice:

Expected Achievements by 2015

Activity 1: Develop a global coastal zone information system: a global cyber-infrastructure that will provide access to available information on coastal zones and facilitate the collection of new information through crowd-sourcing and citizen-science

Activity 1.1: Develop the concept for a comprehensive information system that links a living knowledge base with a virtual stakeholder table and that can enable informed, participatory governance and decision making.

The outcome of this activity will be a community-vetted white paper describing a general concept for a future information system, with specific focus on governance and decision-making in the coastal zone.

Activity 1.2: Implement the information system and populate the system for selected test-beds in North America, Africa, and potentially other locations.

As a result of this activity, a global cyberinfrastructure will provide a basis for communities in coastal zones to populate the system with their information and to use the system in their deliberations.

Activity 1.3: Utilize the information system for deliberations on a few selected topics such as planning for sea level rise, disaster risk reduction for extreme weather events, and identification of emerging public health risks to demonstrate the usability and value-added of the information system in participatory governance.

This activity will result in assessment reports that evaluate to what extent the information system enables informed participatory governance.

Activity 2: Implement a pilot project in an area-at-risk (e.g. Indonesian Archipelago-South China Sea domain) to demonstrate the added-value of ecosystem-based approaches for monitoring and managing the coastal zone. This will be coordinated with GOOS Regional Associations and global/regional networks (see Plan of the Panel for Integrated Coastal Observations)

Activity 3: Assess climate change impacts on island coasts for islands from the Caribbean to the Arctic using SAR data and other relevant data as a demonstrator for the use of space-based observations in the monitoring of climate change impacts. Data for this activity would be sought from CEOS members

Activity 3.1: Develop a description of the assessment detailing the time window to be considered, variables to be used to assess impacts, data needs and analysis approaches, and intended outcomes and reach a consensus between CEOS and a project team on data availability.

The result of this activity is a report providing a basis for the assessment.

Activity 3.2: Carry out the assessment defined in Activity 3.1.

The main outcome of this activity is not the assessment itself but rather a demonstration of how available remote sensing data can be used to assess climate impacts on a ocean-wide scale using slow changes in the coastal zone to base the assessment on.

Activity 4: Assess the observational requirements for decadal forecasts of coastal local sea-level variation and develop a demonstrator forecasting service

Activity 4.1: Develop and implement a system-of-systems model for local sea level (SoSLSL) that can be used to study the predictability of local sea level (LSL) at intra-annual to multi-decadal time scales.

The outcome of this activity will be a open-source modeling framework for LSL that initially will be fully detailed for a few study cases, but can easily be set up for any coastal zone.

Activity 4.2: Use the SoSLSL to assess predictability of LSL depending on data availability. Identify Essential Sea Level Variables, particularly those that would serve the target to ensure early warnings in case of abrupt sea level rise, and define observation specifications for these variables.

This activity will have two main outcomes: (1) an assessment of the predictability of interannul to multidecadal LSL and (2) Essential Sea Level Variables (ESLVs) and specification for their observations.

Activity 4.3: Based on SoSLSL, implement a demonstrator that allows both, predictions of LSL within the range of predictability and queries for "What if" questions to determine LSL trajectories under assumed scenarios for climate change and climate change impacts.

The demonstrator will be available to decision makers and provide a novel way to assess the risk associated with LSL rise.

Activity 5: Assess user needs and observational requirements for coastal water quality (using the GEOSS User Requirements Registry); identify indicators and best practices for coastal water quality, and implement a monitoring service pilot for coastal water quality (with WA-01 and HE-01); disseminate information particularly to under-served communities (with IN-04)

Activity 5.1: Use the proposed Socio-Economic and Environmental Information Needs Knowledge Base (SEE IN KB) to capture water quality goals, targets, indicators and essential variables in deliberations with the relevant user communities.

The main outcome of this activity will be a set of Essential Water Quality Variables (EWQVs) and observation specification for these variables with particular focus on the information needs in the coastal zone.

Activity 5.2: Develop a demonstrator for a coastal water quality service based on observations of the EWQVs with the specific goal to make the information available to underrepresented communities.

The demonstrator will allow to assess data gaps and it will help to assess to what extent the information is of value to societal users, including underrepresented groups.